Tele-guidance based orientation and mobility system for visually impaired and blind persons

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ABSTRACT

The design and development of tele-assistance services have taken a great consideration in the domain of healthcare lately. Telecare solutions are seen as a potential means of addressing the future care needs of ageing societies. With the growing proportion of dependent people (ageing, disabled users), tele-assistance and tele-monitoring platforms will play a significant role to provide an efficient and less-costly remote care and support. It will allow aged and disabled persons to maintain their independence and lessen the burden and cost of caregiving. In the case of visually impaired persons (VIP) and blind persons, guide dog and white cane provide them a fair degree of independence. However, those are very limited in guiding the user towards a specific desired location, especially in an unknown environment. The assistance of other people presents a feasible solution, though it does not improve the idea of autonomous guidance and privacy. The concept of proposed tele-guidance system is based on the idea that a blind pedestrian can be assisted by spoken instructions from a remote caregiver who receives a live video stream from a camera carried by her. The assistive tools have reportedly acceptance issues by VIP. The paper also presents a qualitative study using a modified version of UTAUT-2 (Unified Theory of Acceptance and Use of Technology) to find out causes for acceptance issues in navigation tools for visually impaired. Another goal of the study was to validate the UTAUT2-model is suitable for researching acceptance issues of navigation assistance tools of VIP.